

IN THE CLAIMS:

Please amend the claims to read as follows:

1-40. (Cancelled).

41. (New) A method of forming a pattern of cells on a surface, comprising the step of culturing said cells on a prepatterned surface to form a pattern thereon, wherein said prepatterned surface comprises a pattern of cell-growth promoting molecules or cell-growth inhibiting molecules attached thereon, wherein said cells are from whole tissue, wherein said whole tissue is placed on said pattern of cell growth promoting molecules or cell-growth inhibiting molecules, and wherein said pattern of cell-growth promoting molecules or cell-growth inhibiting molecules allows for the guided growth and migration of cells.

42. (New) The method according to claim 41, wherein said whole tissue is derived from an organism's body.

43. (New) The method according to claim 41, wherein said whole tissue is derived from an organ selected from the group consisting of brain, liver, kidney, muscle, skin, bone, lung and heart.

44. (New) The method according to claim 41, wherein said cells are organ slices.

45. (New) The method according to claim 44, wherein said cells are brain slices.

46. (New) The method according to claim 41, wherein said pattern of cell-growth promoting molecules or cell-growth inhibiting molecules mimics the arrangement of cells in an organ.
47. (New) The method according to claim 41, wherein said pattern of cell-growth promoting molecules or cell-growth inhibiting molecules has a structure with lines and nodes.
48. (New) The method according to claim 47, wherein said lines have a width in the range from 1 – 8 micrometers and said nodes have a diameter in the range from 1 – 30 micrometers.
49. (New) The method according to claim 48, wherein said lines have a width in the range from 1 – 6 micrometers and said nodes have a diameter in the range from 8 – 16 micrometers.
50. (New) The method according to claim 49, wherein said lines have a width in the range from 2 - 4 micrometers and said nodes have a diameter in the range from 10 – 14 micrometers.
51. (New) The method according to claim 41, wherein said pattern of cell-growth promoting molecules or cell-growth inhibiting molecules is formed by at least one layer of a substance selected from the group consisting of polypeptide, polyethyleneimine and polystyrene.
52. (New) The method according to claim 51, wherein said polypeptide is selected from the group consisting of extracellular matrix proteins, poly-L-lysine and poly-ornithine.

53. (New) The method according to claim 52, wherein said extracellular matrix proteins are selected from the group consisting of laminin and fibronectin.
54. (New) The method according to claim 41, further comprising the step of transferring said pattern of cells to a second surface after said pattern of cells are formed on said patterned surface.
55. (New) The method according to claim 54, wherein said transfer step comprises the steps of:
- embedding said pattern of cells in a matrix;
 - lifting said matrix including said pattern of cells from said prepatterned surface; and
 - contacting said pattern of cells embedded in said matrix with said second surface.
56. (New) The method according claim 54, wherein said transfer step further comprises the steps of:
- releasing said pattern of cells from said matrix; and
 - removing said matrix from said pattern of cells.
57. (New) The method according to claim 55, wherein said matrix is a cell-compatible matrix.
58. (New) The method according to claim 55, wherein said matrix is a material selected from the group consisting of agarose, fibrin, collagen and cellulose.

59. (New) The method according to claim 55, wherein said matrix is a matrix comprised of a curable material.
60. (New) The method according to claim 59, wherein said curable material comprises agarose.
61. (New) The method according to claim 55, wherein said matrix is a matrix comprised of a material capable of forming a gel.
62. (New) The method according to claim 61, wherein said material capable of forming a gel is selected from the group consisting of fibrinogen and collagen.
63. (New) The method according to claim 54, wherein said second surface is selected from the group consisting of surfaces of bioelectrical devices, sensors, electrical components, tissues, implants and transplants.
64. (New) The method according to claim 55, wherein said embedding step comprises partially or fully covering said pattern of cells with said matrix in a liquid form; and forming said matrix.

65. (New) The method according to claim 64, wherein said forming step comprises increasing the temperature above the gel-transition temperature and/or addition of at least one gel-inducing component.
66. (New) The method according to claim 65, wherein said gel-inducing component is selected from the group consisting of thrombin and other blood-coagulation factors.
67. (New) The method according to claim 56, wherein said releasing step comprises enzymatic degradation and/or lowering the temperature below the gel-transition temperature.
68. (New) A pattern of cells on a surface produced by a method according to claim 41.
69. (New) A pattern of cells produced by a method according to claim 54.
70. (New) A combination of patterns of cells according to claim 68.